HOUSE OF COMMONS SESSION 1996–97

SCIENCE AND TECHNOLOGY COMMITTEE

First Special Report

The Government's Response to the Science and Technology Committee's Fourth Report, Session 1995-96, The Particle Physics and Astronomy Research Council

Ordered by The House of Commons *to be printed*
30th October 1996

LONDON: THE STATIONERY OFFICE
£2.25

HC 47

The Science and Technology Committee is appointed under Standing Order No 130 to examine the expenditure, administration and policy of the Office of Science and Technology and associated public bodies.

The Committee consists of 11 Members. It has a quorum of three. Unless the House otherwise orders, all Members nominated to the Committee continue to be Members of it for the remainder of the Parliament.

The Committee has power:

(a) to send for persons, papers and records, to sit notwithstanding any adjournment of the House, to adjourn from place to place, and to report from time to time;

(b) to appoint specialist advisers either to supply information which is not readily available or to elucidate matters of complexity within the Committee's order of reference;

(c) to communicate to any other such committee and to the Committee of Public Accounts and to the Deregulation Committee its evidence and any other documents relating to matters of common interest; and

(d) to meet concurrently with any other such committee for the purposes of deliberating, taking evidence, or considering draft reports.

The following were nominated Members of the Committee on 13 July 1992:

Mr Spencer Batiste
Dr Jeremy Bray
Mr Malcolm Bruce
Mrs Anne Campbell
Cheryl Gillan
Mr William Powell
Sir Giles Shaw
Sir Trevor Skeet
Dr Gavin Strang
Sir Gerard Vaughan
Dr Alan W Williams

Sir Giles Shaw was elected Chairman on 15 July 1992.

On 9 November 1992 Mr Malcolm Bruce was discharged and Mr Andrew Miller added to the Committee.

On 16 November 1992 Dr Gavin Strang was discharged and Dr Lynne Jones added to the Committee.

On 7 November 1995 Cheryl Gillan and Mr William Powell were discharged and Mr Ian Bruce and Mr Patrick Thompson were added to the Committee.

The cost of printing and publishing this Report is estimated by The Stationery Office at £390.

FIRST SPECIAL REPORT

The Science and Technology Committee has agreed to the following Special Report:

We have received the following letter from Ian Taylor MBE MP, the Minister for Science and Technology enclosing the Government response to the Fourth Report from the Science and Technology Committee, Session 1995-96, on The Particle Physics and Astronomy Research Council (HC249-I):

Letter to the Chairman from the Minister for Science and Technology (15 October 1996)

I enclose the Government's response to the Select Committee's report on the Particle Physics and Astronomy Research Council.

I welcomed the Committee's inquiry into PPARC. I felt that the inquiry was a timely one, providing a considered view of the issues facing PPARC two years after its establishment in 1994, as announced in 'Realising our Potential'. You know that I share your Committee's concern about the cost of our subscription to CERN and the pressure that it places on PPARC's domestic programme. I hope that we can do something to relieve this pressure by arguing for a reduction in CERN's budget. The Government and PPARC are working with the other member states of CERN to do so. I expect that you will take a close interest in these negotiations and I will, of course, keep you in touch with developments.

I understand that the Committee is now undertaking inquiries into the other Research Councils and I look forward to seeing your reports in due course.

Government response to the Fourth Report of the House of Commons Select Committee on Science and Technology, 1995-96, The Particle Physics and Astronomy Research Council (HC249-I)

We hope that competitive tendering for services formerly provided by the Royal Observatories will lead to significant savings; it is essential that it should not lead to less skilled development and operation of the advanced instrumentation needed to maintain the telescopes at the forefront of astronomy and astrophysics. (Para 17)

The Government agrees with the Committee. The report of the steering committee of the prior options review of the Royal Observatories concluded that the differences in cost between various organisational scenarios could only be evaluated by testing the market. It also said that the major value of both the Royal Greenwich Observatory and the Royal Observatory Edinburgh lay in their skilled and experienced staff and that their particular strength is high quality engineering, technical innovation and skilled project management.

The scientific goals of the Cluster satellites were important and the scientific information they were to have gathered should not be lost for lack of funds. (Para 28)

We recommend that the cost of any United Kingdom instrumentation on a mission to replace Cluster, up to the value of the instrumentation lost on the original project, should be borne by the Contingency Fund. (Para 28)

The Government regrets the failure of Ariane 5's maiden flight and the loss of the CLUSTER scientific mission which it carried. CLUSTER's destruction was a personal blow to the scientists who had spent up to ten years in planning and preparing the project. CLUSTER was to have complemented a number of other missions and facilities, such as the Solar Heliospheric Observatory (SOHO) and the CUTLASS radar, which are successfully producing data. The extent to which the aims of the CLUSTER mission can be preserved is a matter for ESA and national agencies, in the light of financial and other priorities. BNSC is investigating, with other national agencies, innovative and lower cost options capable of achieving the original mission's objectives. PPARC will discuss the options for the UK with the space science community in advance of ESA's Science Programme Committee meeting

in November where the Science Programme Committee will make its recommendations on next steps.

A basic principle of Parliamentary control over central Government expenditure is that Parliament votes money for a service before any expenditure on the service is incurred. The Contingencies Fund is the exception to this rule. It is used in exceptional circumstances where expenditure is so urgent that it cannot await the voting of funds under the normal supply procedure. Given the long term nature of the planning of space missions it is very unlikely that this would be an appropriate call on the Contingencies Fund. We would therefore expect any consideration of UK participation in any replacement mission to be part of the normal Supply procedure.

Any positive recommendations about the future funding of PPARC should not be taken to imply a belief that other parts of the Science Budget should be cut to compensate for increases in expenditure on PPARC's budget. (Para 32)

It is essential that the problems facing PPARC are resolved speedily so that the particle physics community knows at what level it can expect to participate in what has been confidently described as the "pre-eminent world centre for particle physics" and is, among other things, a huge investment in United Kingdom scientists. (Para 97)

We consider that there is good case for a general increase in the Science Budget. (Para 102)

We consider that PPARC should receive adequate funding to exploit the Large Hadron Collider. (Para 105)

The Science Budget itself is above its real terms level in 1993 (the year of the White Paper on Science, Engineering and Technology, 'Realising our Potential'). The 1996-97 Science Budget remains over 30% higher in real terms than in 1979-80. This confirms that basic science is one of the Government's top priority programmes. The Government will take account of the Select Committee's recommendations during the forthcoming Public Expenditure Survey.

The 1996 CERN subscription accounts for 35% of the funds available to PPARC in 1996/97. The Government has said that the CERN subscription is too high and is working with PPARC and other Member States of CERN to reduce it (see below). It is for PPARC to decide on the level of resources which should be deployed to exploit the CERN subscription, relative to the other areas of science which it funds, within the resources made available to it by Government.

We consider that withdrawal from fundamental research would, in effect, terminate the United Kingdom's claims to be among the most advanced nations of the world. Moreover, it would squander national expertise in one of the areas in which British research leads the world. It would also send a very negative message to young people considering scientific careers. We have no wish to see that happen. (Para 34)

We consider that international collaboration has a value over and above the scientific opportunities it affords. Most importantly, it fosters networks of highly skilled people; it gives British researchers and, potentially, British industry, access to the best research available. (Para 37)

The knowledge that international collaboration to investigate the depths of atomic structure or the further reaches of the universe is not simply possible, but is being triumphantly carried out, should act as a spur to collaborate on other more mundane problems which need international solutions. (Para 37)

The Government is committed to supporting basic research and is its major funder. It recognises that the market will not work in respect of basic research. The Government agrees that large science research projects of the sort undertaken at CERN and ESA can only be undertaken at the international level. The UK has an excellent record in the areas of basic research supported by PPARC. The Government recognises the role which basic research has

in capturing the imagination of young people, interesting them in studying science, and attracting them to pursue scientific careers generally.

We consider that it is important that those at the highest level should be seen to take a close and continuing interest in CERN and ESA, even if they are not best placed to deal directly with all the business conducted there. It is unfortunate that the Chief Executive's visits to these international organisations have largely taken place when budgets were being negotiated or when bad news had to be delivered. (Para 57)

The Chief Executive of PPARC heads the UK delegation to CERN and a senior official of the OST is the other delegate. This reflects the importance the Government places on the effective representation of UK interests at CERN. In addition, the Director General of Research Councils takes a keen interest in issues relating to CERN and, for example, participated in the meetings which led up to the approval in December 1994 of the LHC project. Ministers have made a number of visits to CERN in recent years, for example to promote the 'Britain at CERN' exhibition.

The Minister for Science and Technology is regularly involved in ESA negotiations, both through bilateral meetings with other European Ministers and at ESA's Ministerial meetings. The Minister has also visited ESA's technical facilities in the Netherlands. The Director General of BNSC, which co-ordinates UK space policy, leads the UK delegation to the ESA Council. The Chief Executive of PPARC, which provides about 20% of the UK contribution to ESA, attends when major issues of importance to the Science Programme are discussed. On other occasions, one of his senior staff attends.

We welcome the Government's initiative in putting forward a coherent long term strategy for Britain's space activities. We support its proposals for ensuring that both national policy, and collaboration with ESA, are designed to strengthen industry and make it internationally competitive. We hope this will lead to benefits for the overall space programme as the private sector increasingly becomes able and willing to provide some of the finance for its activities. We trust the new policy on space will ensure that in future the United Kingdom will participate in technology development programmes at an appropriate level. (Para 61)

The Government welcomes the Committee's comments on the draft Forward Plan for UK Space Policy, the final version of which was published on 24 July 1996. The Plan was the result of detailed consultation with the space community and it is intended to update it annually. The Government agrees that access to appropriate, cost-effective technologies is essential and keeps the case for support for technology development programmes under constant review. As the Committee notes, funding for the ESA General Support Technology Programme was increased as a result of the consultation process leading up to the publication of the Forward Plan.

The UK has also been at the forefront of negotiations within ESA to increase the number of activities co-funded with industry and in examining different approaches to financing space programmes. A clear example of this is the success achieved in incorporating co-funding in the rules for the new phase of the General Support Technology Programme.

We consider it would be appropriate for the DTI to provide at least some of the funding necessary for industrial liaison, since it is the department charged with promoting technology transfer. (Para 65)

The Government welcomes the efforts made by PPARC to take account of the potential of its research and training for the UK's industrial competitiveness and quality of life. In addition to PIPSS (the PPARC Industrial Programme Support Scheme) the ROPA scheme also applies to PPARC. Although they have yet to award a ROPA it is hoped that PPARC's good work in this area will increase the number of its community eligible for ROPAs in future years.

The DTI and industry were the sole funders of the High Energy Research Facility - Industry Liaison Unit (HERF-ILU) based at Rutherford Appleton Laboratory, now part of the Central Laboratory of the Research Councils (CLRC). That funding was for a period of three years. Lengthy negotiations between DTI and CLRC staff about possible funding for future activities

did not originally succeed in agreeing terms that met DTI requirements for matching funding from industry. However, the DTI has recently agreed to provide joint funding, with PPARC, for an industrial co-ordinator to fill some of the gaps in the present coverage of the CLRC unit. The DTI has a very close involvement with PPARC on industrial liaison issues.

We hope that the compilers of the Forward Look and its Statistical Supplement will bear in mind that one of the functions of such publications is to allow comparisons to be made over time, and will accordingly ensure that in future statistics are comparable from one year to the next. (Para 68)

The CERN subscription is determined on a calendar year basis, and hence there is some flexibility over which financial year the various payments are actually made. This is one of the ways of smoothing fluctuations caused by currency fluctuations.

In calendar year 1996, the CERN subscription in pounds was estimated to be about an additional £18m over the 1994 base year, of which £3m was paid in financial year 1995-96 and £15m in 1996-97. Hence the figures in the Forward Look, which are payments made on a financial year basis, are correct. Future editions of the Forward Look will include a footnote setting out the subscription for the calendar year, where this differs from payments made in the financial year.

Like our colleagues in the Lords who examined this problem in 1991, we believe that it is inappropriate for the Science Budget to bear the costs of fluctuations in international subscriptions. (Para 82)

We consider that placing international subscriptions within the Science Budget means that the science conducted at international organisations is subject to rigorous scrutiny to ensure the money is well spent, while preventing the abandonment of scientifically important programmes on cost grounds. However, it does not seem reasonable that the Science Budget in part or as a whole should bear the considerable costs caused by fluctuations in international subscriptions which have nothing to do with the scale of the scientific programme. (Para 99)

Accordingly we recommend that the Treasury should bear the cost of any fluctuations in international subscriptions arising from fluctuations in the exchange rate, or increases in the United Kingdom's relative prosperity. As a quid pro quo, any notional gains made from such fluctuations should be returned to the Treasury. (Para 100)

The Government does not accept these recommendations. It believes that international subscriptions should be seen as part of our scientific endeavour. Hence, decisions on relative priorities are best made in the context of the resources which the country decides it can afford to make available for science. Consideration of which areas of science to fund must, of course, take their total cost into account.

We are concerned that the United Kingdom is now proposing to renegotiate an international agreement on grounds which should have been apparent at the time the agreement was first reached. Nonetheless, it is also a cause for concern that even under the new system for calculating subscriptions, the CERN subscription can rise so significantly in member states' own currencies because of exchange rate fluctuations. (Para 93)

In view of this all CERN member states may wish to reconsider whether CERN should bear some of the burden of exchange rate fluctuations, and we would support negotiations to this end. (Para 93)

The Committee believes the LHC should be completed, but it needs to be completed in such a way as to avoid making excessive peak demands on resources. (Para 109)

The UK joined other member states in unanimously approving the LHC in December 1994. Due to our tough negotiating position then, savings of 800 million Swiss Francs over the construction period were agreed, which, together with the additional contributions from the host states, will mean a reduction of 1 billion Swiss Francs in the cost of the project to the other CERN member states. Our share of this will be in line with our share of the CERN

budget, approximately 14%. The approval of the LHC also included agreement to a comprehensive review of the project in 1997. The Government remains committed to the LHC but not at any price.

When the Government announced the allocation of the Science Budget in 1996-97 it made clear its concern about the increase in the CERN subscription from £58 million in 1994 to £73 million in 1996. The Government said that it would seek to limit this cost to the UK and decided to do this by working closely with other member states to press CERN to make further savings through the LHC review. We agree with the Committee that CERN's purchasing power has benefited from the recent strength of the Swiss Franc and will be using this argument in negotiations with CERN.

Events have moved on since the publication of the Committee's report. The German Government has announced that, due to its own budgetary pressures, it intends to reduce its CERN subscription for 1997 by around 9% compared with its subscription in 1996. Other member states are also pressing CERN to cut costs. The UK is now working with Germany and other member states to press CERN to consider all options for reducing its overall budget to the benefit of all member states. Some members of the Committee suggested rephasing the timetable for building the LHC. The Government is not ruling out any options at this stage. The Government is firmly committed to ensuring that CERN is subject to rigorous disciplines on its expenditure in a similar way to national laboratories.

The Government agrees with the amendment to the report proposed by Dr Jeremy Bray which recommended increased participation in CERN on a global basis. The financial burden of CERN membership should be shared as widely as possible. For the LHC, this is being partly achieved by voluntary contributions from some non-member states. The Government hopes that the United States will agree to a financial contribution appropriate to its level of scientific participation.

Printed and Published for the Controller of Her Majesty's Stationery Office by The Stationery Office Limited
C6 10/96 273954 19585 CRC Supplied

Published by The Stationery Office Limited
and available from:

The Publications Centre
(Mail, telephone and fax orders only)
PO Box 276, London SW8 5DT
General enquiries 0171 873 0011
Telephone orders 0171 873 9090
Fax orders 0171 873 8200

The Stationery Office Bookshops
49 High Holborn, London WC1V 6HB
(counter service and fax orders only)
Fax 0171 831 1326
68-69 Bull Street, Birmingham B4 6AD
0121 236 9696 Fax 0121 236 9699
33 Wine Street, Bristol BS1 2BQ
01179 264306 Fax 01179 294515
9-21 Princess Street, Manchester M60 8AS
0161 834 7201 Fax 0161 833 0634
16 Arthur Street, Belfast BT1 4GD
0123 223 8451 Fax 0123 223 5401
The Stationery Office Oriel Bookshop
The Friary, Cardiff CF1 4AA
01222 395548 Fax 01222 384347
71 Lothian Road, Edinburgh EH3 9AZ
(counter service only)

In addition customers in Scotland may mail, telephone or fax their orders to:
Scottish Publication Sales,
South Gyle Crescent, Edinburgh EH12 9EB
0131 479 3141 Fax 0131 479 3142

The Parliamentary Bookshop
12 Bridge Street, Parliament Square,
London SW1A 2JX
Telephone orders 0171 219 3890
General enquiries 0171 219 3890
Fax orders 0171 219 3866

Accredited Agents
(see Yellow Pages)

and through good booksellers

ISBN 0-10-200297-5

9 780102 002973